

**Channel Islands National Marine Sanctuary Advisory Council
Marine Reserves Working Group
Meeting Summary**

March 21, 2001
12 Noon — 5:00 P.M.
Fess Parker s Doubletree Resort, Santa Ynez Room
633 East Cabrillo Boulevard
Santa Barbara, California

Meeting Objectives

The objectives of this meeting were to provide the MRWG and attending public with:

- Insight into the goal-oriented trade-offs associated with each of the four reserve concepts developed at the February 21 MRWG Meeting.
- Provide an opportunity to interact with the Science and Economic advisory panels on matters of interest.

In Attendance:

John Jostes - Facilitator

Dave Parker, alternate for Patty Wolf, Co-Chair

Matt Pickett, Co-Chair

Locky Brown

Marla Daily

Gary Davis

Bob Fletcher

Craig Fusaro

Dale Glantz

Neil Guglielmo

Greg Helms

Mark Helvey

Deborah McArdle

Chris Miller

Tom Raftican

Steve Roberson

Sanctuary Staff — Sean Hastings, Satie Airame

Department of Fish and Game Staff — John Ugoretz, Paul Reilly

Science Panel members - Dan Reed, Steve Schroeter, Steve Gaines, Dan Richards and Joan Roughgarden.

Socioeconomic Panel members — Bob Leeworthy, Peter Wiley, Carrie Pomeroy

SAC members present - Melissa Miller Henson-CA Resources Agency, Yurri Graves-Coast Guard, Drew Mayerson and Fred Piltz-Minerals Management Service, Jim Brye-Recreation Seat, Jack Peveler — Ventura County, Matt Cahn — Research Alternate and Science Panel Chair, Tina Fahey-NMFS, Dianne Meester-County of Santa Barbara, Rudy Scott-Business, Roberta Cordero-Public At-large.

Audience

Approximately 60-100 over the course of the day - including sport-divers, recreational fishermen, students, commercial fishermen, business owners and environmentalists.

Introductions and Agenda Overview

The purpose of today's meeting is to:

- To better prepare and educate MRWG, using reserve concepts to get details and data, to reflect the best science and economics in reserve development.
- Prepare for negotiation.

Socioeconomic analysis of four reserve concepts — Bob Leeworthy and Peter Wiley, NOAA economists

Please refer to the handout (PowerPoint presentation), available at Kinko's in Santa Barbara and Ventura, and available on the Sanctuary's website.

Questions and dialogue with MRWG and Socio-Economic Panel members—

Tom Raftican - Expressed concern over absence of private boat data, lack of confidence on data sources.

Peter Wiley - Data used includes - RECFIN, National Park Service, Nature Conservancy, and SAMSAP (CINMS aerial monitoring).

Locky Brown — Pointed out that divers come from Bay area and elsewhere, how are they accounted for?

Bob Leeworthy — In the calculation of the regional economic influence of visitors.

How were social aspects considered for the recreation industry?

Bob Leeworthy - Very light treatment, not as comparable to commercial profiles. There is the Ethnographic Data Survey.

Carrie Pomeroy- Handed out other data from her Sea Grant Research.

- Fishermen in Pomeroy sample are mainly squidders who fish wetfish as well, some engage in other fisheries too.
- Sea Grant study is finalized, quantitative numbers not applied in the CINMS study — Carrie's working relationship with the fishing community helped in the CINMS study.

Neil Guglielmo— Questioned the squid landing ports, how confident can we be with the data? San Pedro fleet lands in San Pedro, due to congestion in Pt. Hueneme.

Carrie Pomeroy— Responded that landings are trucked down to San Pedro, but landed in Ventura Co. Sometimes landed in Monterey. How can you tell if squid is caught from Catalina or Channel Islands? Some errors in reporting landings possibly. Across the board

impacts are scaled between the different alternatives in a linear fashion. Fishery economic assessment model uses multipliers for county economy.

Gary Davis— As we consider maximum potential impacts, a likely outcome will be long-term benefits, how can we estimate this?

Bob Leeworthy — It is very difficult to estimate, we don't have the biological and person behavioral models, and the approach needs to be more qualitative. In FKNMS we set up a monitoring program, and after 4 years of study in the Sambos Reserves, lobster revenue has increased every year. There has been no short-term losses.

What were the estimated impacts?

Bob Leeworthy - Impacts to 12 operators on the order of \$100,000 s. The reserve is very small.

Did the ex-vessel value or market change?

Bob Leeworthy - No. It is difficult to separate the effects of reserves from a concurrent trap reduction program. Less traps same catch, displaced traps moved into other areas, fishing less traps equals cost per unit of effort reduced. There are likely benefits from reserves and fishery management.

Impacts don't take into account regulatory effects here, industry wide impacts, but individual losses might be greater. Step 2 will account for other regulatory actions.

How will consumer surplus/loss from private consumptive divers be calculated?

Has loss of sustenance for a family been calculated?

Bob Leeworthy - No, information on subsistence fishing may be found in landings.

Drew Mayerson — Questioned if there is information on reduction in fishing pressure in outside areas?

How will catch and effort change?

Bob Leeworthy - Some spatial behavioral change models being developed by a UC Davis student.

Jim Brye — What are the impacts to infrastructure, fuel docks and boat yards?

Bob Leeworthy — We have started work with Ventura Harbor to get specific business impacts — Sandy Delano has sent some information, it is not all together yet, and we would like to calculate impacts on a harbor by harbor basis.

Kevin Lafferty — How bad would the estimates need to be for a regional impact?

Bob Leeworthy - You could multiply projected impact by a factor of 10 and impacts are still just a fraction of a percent.

General Public - What are the abalone fishermen doing these days and can this help us understand how displacement may effect current fisheries?

Are local business impacts evaluated from ex vessel value?

Bob Leeworthy - Yes multiplier effects — covers whole economy. There is a lot of information, but money and time dictates how much can be collected.

Harry Liquornik — Noted that abalone effort has been displaced in to other fisheries where boats are compatible. (i.e. urchin, lobster and live-fish.)

Bob Leeworthy - If reserves are done right there will not be whole industry displacement.

Jack Peveler, CI Harbor — We want to get our data into the process.

General Comment - We need complete information; fuel costs are not mentioned for private boats.

Bob Leeworthy - Yes fuel costs are accounted, it is part of the expenditure profile.

Given the limited recreational data, and with extrapolation, what is the level of uncertainty in the data?

Peter Wiley - Can t quantify it, highly certain about charter boats and less certain for private boats. Initial assessment seems high.

Tom Raftican — How many licensed anglers are in the region?

Bob Leeworthy — We didn t collect this information and even if we did there would be no way to translate how they use the Channel Islands.

Craig Fusaro —What is step 2? What do you need from MRWG?

Mark Helvey— Was MRFFS data accessed.

Peter Wiley- Yes, we have location information, but not density information for CINMS.

Marla Daily — What is the nature of information from Channel Islands National Park and Nature Conservancy?

Peter Wiley — Number of boats per day and anchorage counts. Shorebased count and related into aerial surveys for regression relationships. Daily anchorage counts by Nature Conservancy, SAMSAP data.

Jesse Swanhesyer — Questioned is this a standard study for fisheries regulations?

Bob Leeworthy — Typically baseline information is found in fishery management plan (FMP), but there are no good fishery economic studies. I called all West Coast economist, there are no numbers in FMP, only in the Groundfish — which is not a significant fishery in CINMS. We had less information here than we have in Florida, where there are good supply and demand studies. It is surprising that there has been no investment even though it is required in FMP. It hasn't been done here even though it is required by law.

Doug- Economic impact and benefits to Universities and research opportunities should be considered a positive impact.

Reserve implementation will need monitoring.

AFTERNOON BREAK

Bruce Steele— It seems like the audience is not satisfied with the data. However, 80% of commercial data is good, you are not going to get the other 20% to tell you where they work.

Peter Wiley - The Recreational data is good, the Charter boat data is accurate and aerial surveys are detailed. From east to west, we know that there is more activity nearshore than offshore, and this has gone into the calculations and estimates.

SCIENCE PANEL Analysis of four reserve concepts — Satie Airame

Please refer to the PowerPoint presentation handout, available on the Sanctuary's website.

Science Panel introductions - Dan Reed, Steve Schroeter, Steve Gaines, Dan Richards and Joan Roughgarden.

Review of ecological criteria and overview of Science Panel analysis.

Phasing of Marine Reserves

The Science Advisory Panel recommended setting aside at least 30% of the Sanctuary in no-take reserves and phasing in additional areas to minimize the risk that human threats and natural catastrophes would impact all populations within reserves. Phasing in reserves comprising less than 30% of the Sanctuary will provide some benefits for conservation, particularly for species with low dispersal and high reproduction. However, a minimum reserve size of approximately 30% is recommended to reverse population declines and increase biomass, species diversity, individual size and reproductive potential. If small areas are phased into the Sanctuary as part of a larger reserve network, the expected benefits to habitat, fished populations, and fisheries will be delayed for the duration of the phasing process. The same principles apply to limited take and/or buffer zones around complete no take zones.

Matt Cahn — It is important to point out that the Science Panel is not recommending that the MRWG do exactly this, but informing us how different areas contribute to the goals.

Bob Fletcher— One slide talked about stock collapse as related to different percentage set-asides. Many stocks are found outside CINMS and these stocks are very well protected by the Cowcod closure. Was this considered or only stocks within CINMS?

Satie Airame - There are a couple of assumptions - if you are talking about the whole stock then the closures would be comparable, but we are talking about CINMS as a single management unit.

Bob Fletcher- Noted that this is not a closed unit, but an assumption.

Satie Airame - The MRWG limited the science panel to only considering the CINMS area, this is a political constraint on the data collection and analysis process.

Joan Roughgarden— Bob has mentioned this before and we have addressed this issue. The model does have an assumption for what is happening outside and inside reserves, we assume harvest is at Maximum Sustainable Yield — so in a sense we are considering what is happening outside of reserves. The charge to the Science Panel is what to do in CINMS. If you want to consider outside CINMS, it would be nice to have a MOU from responsible agencies and stipulate what might happen. It is wishful thinking that outside reserves we are doing the best fisheries management.

Dale Glantz— Please clarify the insurance factor multiplier. Kelp is resilient to major storms and El Nino.

Satie Airame - Good point, the life history of each species effects the multiplier, so we end up looking at a range of different species over different time horizons and get a range of multiplier from 1.2 — 1.8. Kelp is an interesting species because it is both habitat and the target of harvest.

Mark Helvey — perhaps we can add or remove areas in Concept B/C based on all criteria, particularly connectivity between sites, which was not included in the SITES model, but has been now. Also consider monitoring sites.

Science Panel Response - Science Panel and Socioeconomic Panel would like to combine efforts and data.

Marla Daily—Santa Rosa Island (SRI) has a very low conservation value in SITES, why is this area being suggested as a reserve area now?

Science Panel Response — The current data and connectivity between sites was included after that modeling exercise. Recall that all solutions are viable.

Joan Roughgarden— It is fabulous that we have physical oceanographic data, even this late in the game. Summed conservation maps accurately effect static data; currents have an added benefit to SRI with water turning on itself, which adds to the conservation benefit.

Marla Daily- Questioned how does that affect the NW section of SMI, the common ground area per Bruce s recommendation?

Satie Airame — Responded that San Miguel Island (SMI) still may be a source area, but it depends on the time of year, at certain times the water moves south from SMI.

Craig Fusaro— This is a significant advance, thank you to SP and Satie. The current data will be very useful in crafting a better map. Another component is larval dispersal distances. It should be incorporated. Can we get it?

Satie Airame — We have worked on larval dispersal, but we are now into the realm of new research on larval sources. It will take time to get a confident answer; it is an additional research topic.

Joan Roughgarden— Stated that this is a question of the ragged edge and the leading edge — SP is worried about relationship between currents and animals. I am willing to apply this, but Warner is reticent to make this assumption. Larvae are smart sailors and they actively seek out horizontal movement by vertical transport. This may not be resolved soon. The current maps are generally very useful.

Neil Guglielmo— Said that as squid fishermen we have a two-day closure. Is that preferable to a reserve area, or vice versa to open up these areas occasionally?

Joan Roughgarden —We don t have a track record on promoting reserves, personally I believe we need to reduce effort and implement a reserve. Reserves are equivalent in addressing the conservation issue that single species management does not address. Reserves conserve everything in the whole ecosystem not just a single species. Reserves are easier to enforce too.

Greg Helms— We need to pair or combine our recommendation with an effort reduction before reserves are implemented. Interested in how we address this integration question. The MRWG has discussed the utility of socio-economic mitigation and limited use zones. SP said you can try this above and beyond 30%, what is acceptable to the MRWG?

Matt Pickett— Asked about the relationship between replication and insurance factor - are they comparable?

Steve Gaines — There are two aspects. You don t want individual reserves to be totally compromised by a catastrophe; the insurance factor deals with the total amount of area, even if you have replicates. The impacted areas compromise the total area and the benefit to these areas.

With sustainable fisheries goals — is there an upper limit such as Concept A?

Joan Roughgarden — If a reserve is too big you don't catch anything. 30-50 % is the best size, above 50% are diminishing returns, conservation tells you to make it bigger.

Greg Helms — what is the ultimate size for optimizing reserve area to allow edge fishing?

Joan Roughgarden — Responded that it is all one, it may differ for invertebrates.

Dave Parker — Questioned the rate of catastrophe if based on oil spills? How does El Nino and long term impacts factor in? How would recovery ever occur?

Steve Gaines — Responded that different species have high variability in recovery, we are averaging and the best available information is based on oil spill data.

Gary Davis — The Science Panel has done a remarkable job with a product that we can apply, they have pushed the limit of collaborative work, how much more can we learn with the available data? Can we learn much more without reserves?

Satie Airame — Responded that we have Anacapa data and other information.

Irene Beers — Presented and provided a handout on her reserve work comparing closed and open areas, fished and non-fished species.

Mark Helvey - Questioned how these reserves were established? Habitat or convenience areas?

Deborah McArdle — habitat surveys were not conducted, it was a matter of opportunity or convenience to close these areas.

Tom Raftican — The Science Panel did really good work, based on theoretical values. How did you arrive at your recommendation?

Satie Airame — By considering a range of life history for several species.

Joan Roughgarden — We used literature review of data from other reserve areas and the data supports the Sissenwine model. Then, modeling with the assumption of MSY, which assumes intelligent management outside of the reserves, reserve map analysis is based on the static data available and adding current flows. Stage 1 was consideration of the theory and empirical data and CINMS habitats, Stage 2 — generated maps based on CINMS habitats.

Tom Raftican - likes the idea of limited impact areas and the comments made on reducing fishing effort. Certain resources are more renewable than others. Are there other highly renewable resources looking at life history, dorado and cowcod, so that we protect some species and not the other species?

Joan Roughgarden— I would like to work with the Socioeconomic (SE) panel and offer different options, it is awkward to be positioned with defending ecology. We could conduct modeling with the SE and SP apply it to the policy arena.

Tom Raftican— It is more than dollar and cents, it is our heart and soul. We are looking for compromise.

Joan Roughgarden — Suggested Adaptive management — look again in 3-5 years and learn from new research.

Dan Richards — The MRWG asked us if the science is as far as we can go? Yes, we can't go any farther without different size reserves and to do research, so down the line we can adjust. We keep talking about individual species, and yet we don't have any intact ecosystems to compare. So we can't answer the pollution and El Nino impacts, there is value to the whole system.

Satie Airame — The SP has considered different life histories, mainly from Sissinwine, with a broad base of species. If you can get into species specific reserves than that is something different.

Tom Raftican— We would like to see species specific reserves and this allows some of us to survive, recognizing we need some core no —take areas.

Steve Roberson — Thanked the SP for the great information.

Locky Brown—I am where Tom Raftican is. Migratory species will not be effected by a particular reserve. Free divers would like species specific reserves.

Neil Guglielmo— When we create reserves and the local populations reproduce in the reserves, is there a genetic effect that makes them susceptible to disease?

Joan Roughgarden — It is the other way around — fishing may change the genetics, but disease is part of the ecosystem, with reserves the stock won't suffer as much from fishing.

Satie Airame— The SP information will be provided to MRWG and the public.

Paul — San Diego Dive Council — If Northeast Santa Cruz Island (SCI) is included, it may exclude access to the species that grow there but don't leave there.

Satie Airame— There are different dynamics between SCI and San Miguel Island. You have larvae moving through or being retained. At SCI it is ideal, because it would enhance population production and edge effect for harvesters and wrap to South SCI.

Free Diver comment — I disagree with Irene Biere's findings there is an evolution of fishing avoidance — bubble diving versus free diving — larger fish outside of reserves are hiding from bubble divers. Free divers can still find the fish.

Steve Schroeter- Noted that fish considered in the study included non-harvested species too.

Satie Airame— We have looked at 76 reserve studies worldwide looking at all species — on average you get 2.5 increase in biomass and double the density and 1.3 times in individual size and reproduction.

Public question - When you compare biomass and impacts of pinnipeds — will pinnipeds affect the biomass?

Science Panel response - You have that consumption with or without set-asides.

Sean Hastings — Marine mammal predation is a question that the MRWG is considering.

Satie Airame - All studies have shown that species have increased after reserves are set-up.

Public question - We talked about catastrophic effects — take the 1969 oil spill effects. What didn't recover?

Satie Airame— It has been a long time allowing for recovery, no great historical dataset before then.

Bruce Steele — Noted that the Sanctuary Advisory Council is charged with determining what is fair. I need insurance that if I am expected as a fisherman to drop 30% of my turf, I am being expected to mitigate my impacts as a human. It is everybody in this room's responsibility to shoulder the burden and impact of society.

Public question - Are we talking about no take or no access?

Response - No take.

MRWG Roundtable discussion

Bob Leeworthy — The SE Step 2 analysis takes into account what regulations have relevance to closures and how this impacts them. We need to think about this in an integrated way. Gives us confidence in the reality of the numbers. We will give you qualitative assessment on numbers. We need to know some status of resources to determine if things get better or worse. Local knowledge in a working session will be very instructive with all of the data — this is the evolution of the process. I'm only presenting you with the big picture. Seasonal considerations, etc, send to Bob. For example, working with the existing cowcod closure impacts will be considered in the SE Step 2 analysis.

Marla Daily— Received from fellow Sanctuary Advisory Council (SAC) member a request to incorporate Ventura Harbor data. Thanked the attending SAC members.

Bob Leeworthy — Noted that for the time frame of Step 2 — Depends how quickly we get information together; we could do it in less than a month. But, we need to do this in a working session together.

Craig Fusaro— We have the April meeting to distill maps into a single map, and we will not benefit from a Step 2 economic analysis.

Gary Davis— Asked how big is the impact from Monterey to San Diego?

Squid harvest drives this issue. Squid harvest is averaged over 4 years.

Does impact go beyond Monterey? Certainly.

Bob Fletcher — Noted the dramatic difference from one alternative to another, I observe that as you go into larger areas you lose the ability to substitute other areas. Need to factor in rockfish closure at SBI. The smaller the reserves the easier to make a living elsewhere.

John Jostes — Added a perspective on where we are going and how to facilitate over the next four weeks. Bring a constructive attitude to map discussions, and specific assurances to minimize impact, what perspectives not considered that need to be. Facilitation team will be calling with tough questions on how to work together.

MRWG Reflections on today s meeting

Locky Brown — He is interested in the ocean current flow charts.

Steve Roberson— Asked to get copies of Science Panel recommendations.

Chris Miller— Requested that there be several mapping exercises formal and informal and mapping with socio-econ information. It is interesting the way the percentage approach drives things and it is different than when option C is drafted on a quality of habitat mapping. That option had lower economic impact than the agency one. In yesterdays exercise, I had to let go of being a rep and let the people do their socio-econ thing, the measure was a 10% impact economically, which they felt they could live with and a parity by a percentage of impact. The percentage approach works both ways. At the end of the process we need to talk about if percentage approach is effective for social context. Adaptive implementation will move us forward, no one will be very happy and we have to make a recommendation and have a lot of trust. This is the idea of community based management as Mike McGinnis discussed, no one will be comfortable with the status quo on how we all work together.

Deborah McArdle— Acknowledge SP and SE panels, we asked them to use the best available data and they have gone above and beyond the most I have ever seen in any management process. SP is top notch.

Tom Raftican— Echoes what Deborah and Chris have said - The SP theoretical model is driving this approach, there is difficulty in acquiring the numbers, socioeconomic part is only

a part of the whole, with science on both sides, it hits the road when the constituencies come in. Our MRWG role is to bring it all together and to integrate it. If everybody goes away mad we are successful.

Gary Davis— Noted that we have really good information and we used it appropriately. My view is that as we work to protect resources, by minimizing costs can we still make the reserves function and meet our goals.

Dave Parker — The SP and SE provided a tremendous amount of information that is the best distillation and the MRWG can use the information.

Bob Fletcher —Pleased to see SE panel, I ve been carrying a huge weight of waiting for SE, the SP info is valuable. We had to balance the weight of science with the public and other advice. We will end up with something that accounts for all of this, leaning toward a less onerous option. My mind is open to finding a way through this maze, that is very uncomfortable, to allow for creation of a tool with all other tools and not move away from what industry needs to do to survive. That will weigh heavily on my decision.

Dale Glantz— Pleased with the SP comments, I have been negative to date and my attitude has changed, maybe SP and SE can work together.

Mark Helvey— Appreciates hard work of the panels. Our job is much more difficult as information managers. We spoke a lot on two goals. We need to compromise to meet socio-economic goal. We have lost sight because of habitat quantity and as we begin to balance, we need to think about habitat quality and the sources of potential biomass. I was pleased to hear about connectivity and sources and sinks. I will be looking at this from a habitat quality approach and not quantity.

Craig Fusaro — Noted that this has brought us as far as we can go, looking forward to synoptic current information, we are very close to have something very new in CINMS, and let s work even harder now than we have.

Neil Guglielmo — Thanked the panels and audience — support Gary s recommendation.

Greg Helms — Pleased with SE data and bringing it in to the process. We have a lot of data on dollars and we need to think about how we create sustainable fisheries. I have a sense of duty to the long term and I remain open to information on how to deal with short term impacts without compromising long term benefits. I can t sacrifice the long-term goal. Benefits of reserves to sustainable fisheries is what we should focus on. We are not engaged in a balancing act. We signed on to achieving goals and objectives and minimizing socio-econ impacts, not balancing. B and C demonstrates differences and ability to achieve goals and manage impacts. I am afraid that choosing small areas that are not fished as effective, but quality and quantity are not distinct and we need to be open to this.

Matt Pickett— We are very fortunate for this expert advise. We have a lot of work to do, the Sanctuary will support weekly mapping sessions, maybe island by island, at the CINMS office.

Meeting Adjourned

Preparation for the evening public forum ensued.